Running: PRODUCTIVITY, DATA QUALITY, COMPLIANCE, AND DIAGNOSIS PATTERNS

Graduate Management Project

A Focused Review of the Interrelationship between Productivity, Data Quality, Compliance, and Diagnosis Patterns in the Family Health Clinic, Moncrief Army Community Hospital

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14. ABSTRACT
Moncrief Army Community Hospital (MACH) is a Medical Treatment Facility(MTF) located on Fort Jackson, South Carolina. MACH falls within Health Service Region 3 of the TRICARE nationwide system. MACH is responsible for providing care to active duty soldiers permanently assigned to Fort Jackson, their family members, eligible retirees, and active duty soldiers temporarily assigned to Fort Jackson for Basic Combat Training, Advanced Individual Training, and other service schools for enlisted soldiers and officers. The Family Health Clinic (FHC) is MACHs primary care clinic for permanent party soldiers, their family members, eligible retirees and their family members. Like most clinics in the Army Medical Department (AMEDD), the MACH FHC is responsible for capturing data forpatient visits and telephone consults in the Composite Health Care System (CHCS) and the Ambulatory Data System (ADS). Historically, the FHC has submitted incorrect data which, inturn, fails to accurately reflect the volume and acuity mix actually seen by FHC providers. The purpose of this project was to identify areas of data collection and coding compliance that were in need of improvement in MACHs FHC and provide it with a reporting tool coupled with an education process to improve those deficient areas.

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Abstract

Moncrief Army Community Hospital (MACH) is a Medical Treatment Facility (MTF) located on Fort Jackson, South Carolina. MACH falls within Health Service Region 3 of the TRICARE nationwide system. MACH is responsible for providing care to active duty soldiers permanently assigned to Fort Jackson, their family members, eligible retirees, and active duty soldiers temporarily assigned for Basic Combat Training, Advanced Individual Training, and other service schools.

The Family Health Clinic (FHC) is MACH's primary care clinic for permanent party soldiers, their family members, eligible retirees and their family members. Like most clinics in the Army Medical Department (AMEDD), the MACH FHC is responsible for capturing data for patient visits and telephone consults in the Composite Health Care System (CHCS) and the Ambulatory Data System (ADS). Historically, the FHC has submitted incorrect data which, in turn, fails to accurately reflect the volume and acuity mix actually seen by FHC providers.

The purpose of this project was to identify areas of data collection and coding compliance that were in need of improvement in MACH's FHC and provide it with a reporting tool coupled with an education process to improve those deficient areas. Results of this study showed that coding timeliness, as evidenced by ADS compliance standards, improved from 90.9% to 99.9% for outpatient visits and 87.9% to 99.7% for telephone consults to the FHC from Phase I (January-June 2000) to Phase III (January-February 2001) of the study. The percentage of all diagnoses that made up the Top Ten diagnoses also showed positive results, dropping from 64.3% to 27.7% for the same time periods. The FHC's relative value unit (RVU) scores dropped with the rest of Region 3 over the course of the study, but were consistently higher than other facilities in the region.

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Introduction

Health care continues to be a topic of growing importance in the United States. Concerns over health care can be narrowed down to three main headings: quality, access and cost. Recipients want health care that is of high quality, as soon and often as possible, at a reasonable (cheap) price. While it may be possible to provide quality care in an easily accessible manner, generally speaking it comes at a high price. This dilemma spawned the rise of the managed care model of health care delivery in the United States which attempts to balance quality, access, and cost in order to provide patients with a reliable standard of care at an affordable price.

Managed care was a marked departure from the fee-for-service model that managed care sought to replace. Fee-for-service healthcare was essentially no more complicated than its name implied. Patients received whatever care the provider thought was warranted, or the patient was willing and able to pay for, and the provider billed the patient directly or their medical insurance for all the care the patient received. Under fee-for-service, providers were motivated to treat more patients, because more treatments meant more revenue. Managed care, however, includes some characteristics that make it radically different from the fee-for-service model.

The managed care model of healthcare is delivered through a variety of prepaid health plans such as a health maintenance organization (HMO), a preferred provider organization (PPO), and an individual practice association (IPA). While each is different in structure from the other, these organizations have similar characteristics that link them together as managed care organizations (MCO's). These characteristics include an enrollment or impanelment process,

capitation, and a primary care provider (PCP) that functions as a start point for all of a patient's care.

Managed care health delivery encompasses a variety of prepaid health plans. Beneficiaries "enroll" into a particular plan and pay a set amount each month or each year for a determined number of covered benefits, such as prescribed access standards and reduced copayments for outpatient visits and prescriptions. The cost of the plans for the beneficiary are based on the type of plan (i.e. HMO versus PPO), their medical history, and the number of services covered under the plan. In this respect, managed care health delivery is very similar to the insurance industry where funds are paid in advance for services that may (or may not) be used in the future.

After, selecting the type of plan the beneficiary wants and/or their employer offers, the beneficiary may select from a list of participating primary care providers who are responsible for the delivery of their basic health care needs. This is known as impanelment. The beneficiary is "impaneled" into the provider's population of potential patients. The number of patients that can enroll to each provider is known as capitation is discussed next.

Capitation is the process that assigns a specified number of beneficiaries to a primary care manager who provides their primary health care and issues referrals for specialty care. Under capitation, the provider is paid a set amount for each beneficiary, typically on a Per Member Per Month (PMPM) basis. The provider uses these set funds to operate their practice and provide care, within approved practice guidelines, as they sees fit. Funds remaining after operating expenses and delivery of care have been provided represent a profit to the provider. If the provider exceeds the set amount, they absorb a loss for that period (Sultz & Young, 1999). The provider, therefore, is motivated to keep patients well and out of his office whereas the fee-

for-service model sought to maximize patient visits to generate more income (Kovner, 1996). This leads to the next characteristic of managed care, prevention. The HMO model is used to illustrate this point.

The HMO model begins with a primary care provider, such as a family practitioner, general internist, or pediatrician (for children) that provides the majority of care for their beneficiaries. The primary care provider also functions as a "gatekeeper" in that a patient must receive a referral or authorization from the primary care provider before seeking care from a specialist if the patient wants the visit to be covered by their health plan. The gatekeeper function is used to limit the number of referrals to specialists and admissions to hospitals, thereby saving the managed care plan money through reduced utilization of these more expensive services.

While the fee-for-service model counted on patients getting sick or injured and presenting (hopefully often) for care, managed care uses a wellness model that stresses good health and prevention via education programs to help patients adopt a healthy lifestyle. The philosophy behind this approach, is the main premise of managed care; an attempt to reduce visits to the provider, thereby reducing costs. It also gives the patient some control over managing their own health issues.

All of the aforementioned characteristics rely on one key component: data. Data are used in a variety of ways in managed care, to include documenting diagnoses codes, generating billing, enrolling beneficiary populations and performing utilization management. Databases maintain information on the enrolled population and can be used to make staffing, budget and workload decisions. Data, along with the other aspects of managed care, were supposed to improve the access and quality of care, while reducing, or at least controlling, the cost of that

care. Unfortunately, managed care has had difficulty in fully achieving many of the primary goals of controlling health care costs, maintaining the quality of that care or improving its access.

A result of the growing concerns over costs and quality in the public sector was increased regulation of health care by state and federal authorities. Federal legislation is impacting on health care more than ever. Issues about over-billing and cost containment are at the forefront, followed by patient rights, medical errors, patient privacy information issues, and Federal Health care entitlements, to include Medicaid, Medicare, veterans health, and the Department of Defense health program. Stringent regulations for reimbursement have given rise to the need for accurate data systems and tools to capture and report data on patient care, billing for that care and practice costs.

The military, like the civilian sector, has adopted the managed care approach to health care delivery through a system named TRICARE. The foundation of the TRICARE system is the network of medical treatment facilities (MTFs) located on military installations. This system is augmented by a regional Managed Care Support Contractor (MCSC) that establishes a civilian provider network in the communities around each installation to supplement the MTF's delivery of care for those beneficiaries eligible for care at the MTF. Similar to its civilian counterparts, TRICARE uses Primary Care Managers (PCMs) as the first step in the care process. Patients must seek primary care from their PCM or see their PCM for a referral to a specialist. The main difference is that the military system does not rely solely on private reimbursement for services to stay financially viable. However, since it is a federal government program, the Military Health System (MHS) has not escaped increased regulation. The MHS has also seen increasing requirements for more accurate coding and workload reporting by providers. The mandates for these requirements have come from within the MHS because it continues operating under ever

declining or flattened resources, specifically funding and personnel. To maintain adequate funding, MTFs must accurately capture provider workload and report it to their respective headquarters. These reports can be used to justify issues such as staff increases or decreases and funding changes based on an MTF's overall workload.

Moncrief Army Community Hospital (MACH) is a Medical Treatment Facility (MTF) located on Fort Jackson, South Carolina. MACH falls within Region 3 of the TRICARE nationwide system. MACH is responsible for providing care to those service members permanently assigned to Fort Jackson, and their family members, eligible retirees, and service members temporarily assigned to Fort Jackson for Basic Combat Training, Advanced Individual Training, and service schools for enlisted soldiers and officers.

Like all MTFs in the Department of Defense (DOD) inventory, MACH is responsible for reporting data such as encounters (diagnosis codes) and available work hours to its higher headquarters, in this case the U.S. Army Medical Command (MEDCOM). This entity, in turn, has input into the staffing requirements and budget for MACH. This puts the onus on the command team of MACH to provide accurate data, specifically in the areas of workload and acuity mix as reflected in diagnosis codes. Because of the scrutiny being placed on the quality of Ambulatory Data System (ADS) data (www.tricare.osd.mil/NewsReleases/News99_05.htm, 1999), it may not be a great leap to assume that ADS information, which includes acuity mix information, directly impacted by the diagnosis codes used by the providers, could be used by the MEDCOM for staffing and budget requirements in the near future.

Conditions that Prompted the Study

The MEDCOM uses several data systems in order to operate its 35 hospitals. Each of these data systems has data accuracy, timeliness, and compliance standards. One of these systems is the Composite Health Care System (CHCS). The CHCS is a hospital information system that is primarily used for inputting patient demographic information and booking patient appointments to providers in the various clinics of an MTF. The CHCS data are used to populate the workload portion of the MHS-wide cost-accounting system, the Medical Expense Performance Reporting System (MEPRS), a second system used by MEDCOM. A third system used by the MEDCOM is the Ambulatory Data System (ADS). This system collects data such as type of appointment, illness or injury and diagnosis given to the patient for outpatient visits (www.tricare.osd.mil/dataquality/links.htm). Collection of data into the ADS system is an important task for the FHC because all of the FHC's appointments are for outpatient visits. Additionally, the MEDCOM has mandated a 97% compliance rate for ADS. This means that a facility must record an encounter into ADS for each CHCS-completed visit 97% of the time or better. This is done to ensure visits booked into CHCS are captured as a visit into ADS, where visits are counted for work credit. Encounters are recorded as individual Standard Ambulatory Data Records (SADRs) within ADS. This information can be used to analyze the workload and acuity mix of patients seeking care at MACH. If these systems are used properly (i.e. to prescribed standards), many facilities in MEDCOM could rely on the data produced by these systems to make decisions on issues such as staffing levels, staff mix, number and type of patient visit per provider, and department budgets. At the MTF level the information provided could identify factors for potential epidemics in the served population. Unfortunately, many facilities in MEDCOM are burdened by poor data; therefore leadership at every command level, from the

MTF to the MEDCOM is reluctant to make decisions based largely on internal data or data reported to MEDCOM.

The Family Health Clinic (FHC) was selected as the subject for this case study because it is MACH's primary care clinic. As such, the FHC sees the majority of the permanent party beneficiaries that present to MACH. This fact makes FHC the most important clinic to the facility in terms of implementing changes that will result in the largest improvements in data quality for MACH. The impact of improving data compliance in this clinic should also stimulate interest throughout MACH that will result in improvements throughout the facility.

Statement of the Problem

The MACH FHC is submitting flawed data that incorrectly reflects the workload that FHC actually accomplishes, and FHC is not maintaining data compliance standards as prescribed by MEDCOM.

Literature Review

Managed care is the dominant form of health care delivery in the United States. Managed care grew out of the need to control the continually increasing costs of health care while still maintaining an adequate level of quality in a reasonable amount of time. The United States armed forces, like the civilian sector, witnessed increased use of services and rising medical costs in the late 1980s (Zwaniziger, Kravitz, Hosek, Hart, Sloss, Sullivan, Kallich, & Goldman, 2000). Between 1981 and 1987 annual costs growth rates approached 12% at MTFs (Zwanziger et al., 2000). Costs were also growing for the MHS's supplemental program, the Civilian Health and Medical Program of the Uniformed Services, or CHAMPUS. The CHAMPUS program was initiated in 1956 to augment the MHS by providing care for eligible beneficiaries through participating civilian healthcare providers. The CHAMPUS program was

initially successful at relieving the MHS of the growing responsibility of healthcare to family members and retirees, but was not able to effectively control costs. These rising costs, mixed with growing beneficiary dissatisfaction, led to the initiation of several demonstrations to test the feasibility of a managed care system of health care delivery in the Department of Defense (Kongstvedt, 1997; Campbell, 1998; Goodman, 2000).

The first demonstration used was the CHAMPUS Reform Initiative, or CRI. CRI used a three-tiered model of health care delivery options: CHAMPUS Prime (Health Maintenance Organization model), CHAMPUS Extra (Preferred Provider Organization) and Standard CHAMPUS (Fee For Service). The CRI model was modified and improved and eventually selected as the health care system for the DOD. The program's name was changed from CRI to TRICARE, representative of the three services-Army, Navy, and Air Force of the Department of Defense. TRICARE was initially implemented in the northwestern portion of the U.S. and was phased across the U.S from 1995 to 1998. Like managed care in general, TRICARE has changed the approach of healthcare from a retrospective approach of care and financing to a more prospective approach, and, along with decreasing funding and staffing levels, has also impacted the overall approach to healthcare delivery. These factors have caused MTFs throughout the DOD to look at their staffing models, determine if the current practice works, and in many cases to change their current approach to a more efficient model of staffing and operations. A review of the literature revealed that such changes are common in MTFs across the three services (Kongstvedt, 1997; Mcgee & Hudak, 1995).

"Reengineering Medical Treatment Facilities for TRICARE: The Medical Group Practice Model" (MGPM) was one of the various models found when reviewing the literature. According to the authors, this model can be applied to any size MTF. The main theme of the MGPM is to

link similar clinical departments, including the inpatient component, under a common management umbrella (McGee & Hudak, 1995). This model is implemented in three phases beginning with developing a concept of operations, through formation of groups, and into development of management structure and composition. Key elements of this model include performance measures that focus on efficacy and efficiency. Measures cited by the authors include average length of stay versus Diagnosis Related Group (DRG) expected length of stay; cost of clinical support testing per visit or DRG; and cost of pharmacy prescriptions per visit or DRG.

Similar to the previous model, " Provider Workforce Model for Regional TRICARE Networks" offers a framework for military leaders to use in developing staffing levels for MTFs (Lamar, Jacoby, Meyer, & Potter, 1997). The authors cite that the model is reliant on accurate estimates of enrolled beneficiaries in each region, and contend that current data (at time of print) are outdated and inaccurate. This model uses a series of formulas to ultimately arrive at a provider to beneficiary ratio of 156 providers per 100,000 beneficiaries, 70 being primary care providers and 86 being specialists in various fields of medicine (Lamar, et al., 1997).

Lieutenant General Paul K. Carlton Jr., the Air Force Surgeon General, has also taken an interest in the staffing requirement in Air Force MTFs. In an interview for the Newport News Daily Press (Philpott, 2000), Lieutenant General Carlton discussed pending changes in the Air Force's medical staffing mix, expressing a desire for more primary care physicians and fewer specialists or physician assistants. He plans on adding more support staff to allow the physician more time with patients and tasks nurses and medical technicians with assuming a greater role in overall patient care. Finally, Lieutenant General Carlton plans to set uniform staffing levels for

all Air Force MTFs, stating that for every 6,000 patients "you should get 22 people" (Philpott, 2000).

TRICARE has also spawned the change in process models. "Resourcing Decision Model for Military Hospitals" (Hart & Connors, 1996) presents a fresh approach based on a three question triangle: (1) Does the proposal make good business sense? (2) Does it contribute to readiness? and (3) Is it the right thing for the patient? Notably, the authors state that the answers to their questions are heavily reliant on accurate data.

"A Model for Demand Management in a Managed Care Environment" (McGraw, Barthel, & Arrington 2000) discusses the implementation of a Central Triage service staffed entirely by registered nurses at Blanchfield Army Community Hospital, Fort Campbell, Kentucky. The Central Triage was designed to be the initial entry point for all individuals presenting for care. After triage and screening the patient would be directed to the most appropriate source of care. The premise behind the Central Triage was the fact that most people presenting to the Emergency Department did not actually need emergent care and in many cases patients could manage their own care with some education. Preliminary findings, based on data collected over a ten-month period (February 2 to October 31, 1998), showed that 23% of those presenting to the Central Triage could manage their own care once they were given education (McGraw, et al., 2000).

The last model in this area is the Empowerment-Interaction Model developed by Ledlow, Bradshaw & Shockley (2000). This model, formally titled the "Community Primary Care Access Improvement Program," focused on staff empowerment through a centralized management system that is coupled with decentralized interaction, information sharing and teamwork. Essentially, this model empowers staff members to make decisions concerning

appointment access when appropriate rather than relying on middle or upper level management to effect policy. The result of testing this model showed that the empowerment-interaction treatment effect was a valid method to improve primary care access in staff model HMO-type organizations (Ledlow, et al., 2000).

While the first three models dealt with structure issues (staff mix) and the other three dealt with process issues, all six models shared two common elements. First, all of the models were initiated as a result of the implementation of TRICARE. Second, all used data in some capacity, either to benchmark standards, for analysis, or for review of records. Many of these authors mention the need for accurate data or convey that the available data was suspect and needed improvement. In addition to the impact on staffing and process issues, TRICARE also effects how funds will be provided to MTFs. Early versions of TRICARE provided funding under a "workload plus" model that gave MTFs a set amount of funds based on workload produced in the MTF. It also funded the contractors based on the amount of work that the MTF sent out to the local networks for services the MTF couldn't provide or for eligible beneficiaries that enrolled to a PCM in the network.

Data, more specifically accurate data, have several beneficial implications for MTFs. In her brief, "Outcomes Management: An Imperative for the MHS", Lieutenant Colonel (LTC) Kathryn J. Dolter lists areas where MEPRS data alone were used: directed economic analyses, mail-order pharmacy use, facility sizing and construction studies, and provider compensation studies (Dolter, 2000). LTC Dolter also shows that MEPRS data are seen at levels as high as DOD, Congress, and presidential committees. The last slide of the brief, titled "What can AMEDD personnel do at the MTF level to impact OM (Outcomes Management)?" effectively summarizes the point on accurate data. The slide's third bullet states "Ensure accurate MTF

workcenter cost/ workload reporting—*improve MEPRS accuracy!!*" (Dolter, 2000). Data are also used for studies to improve the overall health status for a given population.

A review of the literature revealed several instances where data proved to be valuable assets for various studies. In "Nurse Staffing and Patient Outcomes" data were collected from hospital records from July 1992 to June 1993 and analyzed to determine a relationship among total hours of nursing care, registered nurse mix, and adverse patient outcomes (Begen, Goode, & Reed, 1998). McGinnis & Foege (1993) used data from articles collected through MEDLINE from 1977 to 1993 to determine and quantify the major external (nongenetic) factors that contribute to death in the United States (McGinnis & Foege, 1993). Lastly, data from a survey conducted by the University of Michigan Survey Research Center investigated the degree to which four behavioral risk factors (cigarette smoking, alcohol drinking, sedentary lifestyle, and relative body weight) explain the observed association between socioeconomic characteristics and all-cause mortality (Lantz, House, Lepkowski, Williams, Mero, & Chen, 1998).

Data are being used more frequently to develop performance measures and "scorecard" reports to assist healthcare leaders in their strategic planning and corporate decision making. Kaplan and Norton (1993) developed the "balanced scorecard" model that integrates financial and workload performance information to keep healthcare executives better informed on the state of their facilities. Similarly, the Mayo Clinic outpatient operations leadership used data produced in-house to create a performance management and measurement system. This system links the organization's vision, values and core principles with daily operations and allows its leaders to gauge success on a weekly, monthly, or quarterly basis (Curtright, Stolp-Smith & Edell, (1999).

The MHS has also used data to develop performance measurement tools. The Medical Expense and Performance Reporting System (MEPRS) uses expense, manpower, and workload data as the basis for regular financial and operating performance reports (MEPRS website, 2000). The DOD, through the Data Quality Action Team, has also developed an MHS Data Quality Plan that includes a data quality metric survey. Metrics of this survey are designed to measure staffing levels, number of patient visits, and capture the number of incomplete Standard Ambulatory Data Records (SADRs) in the Ambulatory Data System (ADS) (MHS Data Quality Plan, 2000).

Wennberg has discussed the utility of data at reducing practice variation. In his article, "Variations in the Delivery of Health Care: The Stakes are High" (1998), Wennberg explains that HCFA has implemented a process improvement process that measures population-based variability and uses feedback as a mechanism to influence provider behavior. The key point of this article is the need to report provider data back to the provider as a tool to improve practice behavior. This same philosophy can be applied to provider data quality efforts.

To be of any value, however, data must be accurate. Kongstvedt (1997) describes some characteristics that are essential for useful data. Data must have integrity, be consistent and mean the same thing from provider to provider, be valid, have meaningful measures, and must encompass an adequate time period to be of value to a healthcare organization (Kongstvedt, 1997). Data may come from multiple sources and, therefore, must be integrated into a common database (Kongstvedt, 1997; Defense Information Systems Agency, 2000). Similarly, the MHS Data Quality Plan (2000) lists key characteristics for data quality that include timeliness, completeness, accuracy, and comparability (MHS Data Quality Plan, 2000). Additionally, six data characteristics are currently being used by the TRICARE Management Activity to develop

standards by which TMA, a DOD proponent, can evaluate an MTF's data quality (D. Smith, personal communication, November 13, 2000). The characteristics are accuracy, completeness, consistency, timeliness, uniqueness, and validity.

Kongstvedt's (1997) explanation of data integrity describes data that are free from error or that have a minimal number of errors. Unfortunately, the issue of error laden data is common in the healthcare industry. In fact, literature is available on the subject of correcting inaccurate data entry. "The biggest coding blunders" (Finger, 2000) addresses the issues of undercoding and overcoding in the private healthcare sector. Coding errors effect not only data quality, but also hinder reimbursement efforts, and may lead to legal difficulties with the federal government for fraud.

Many physicians and their staff fail to code to the highest level of specificity (Finger, 2000). Fear of overcoding and lack of effort are cited as the chief reasons for undercoding. Many providers downcode but don't record a chief complaint, and no code is appropriate without a chief complaint. Finger also states that a physician may not worry that a single urinalysis wasn't coded for a particular visit, but she points out that "if they miss two a day for 52 weeks, the amount of money they could have billed that year becomes substantial" (Finger, 2000). To correct coding errors Finger offers the following tips: familiarize yourself with the CPT and ICD-9-CM books; look to expert outside sources; have a certified coder on staff; design your information forms carefully, and then review them regularly; regularly audit both your explanations of benefits and your medical records; and make certain your computer software is up to date (Finger, 2000).

The need for data, and more importantly accurate data is a common theme throughout the literature. Campbell (1998) states that commanders must ensure that they and their staffs focus

on establishing and maintaining quality data integrity. Hart & Connor (1996) echo that sentiment by contending that to make intelligent business decisions relevant and valid data must be gathered and analyzed. Clearly the need for accurate data in the healthcare industry is a must. But how do you ensure accurate data and where do you get the data from? Finger (2000) offers part of the answer of how to ensure accurate data, via coding, in her process mentioned earlier. Key items of this plan include familiarization with the applicable codes, careful designing of information forms, and regular audits to ensure quality (Finger, 2000). The second question of where to get data from and how to integrate it is a little more difficult to answer.

All too often the answer to this question has been to purchase a new information system to capture the desired data, when the data may already be available in the existing systems. But in the current period of shrinking budgets the focus is changing to using available systems to get the needed information. Most healthcare organizations have plenty of technology in place, despite criticism to the contrary. "We're awash with data in the AMEDD" (R. Goodman, personal communication, October 10, 2000). Bertauski and Synowiez (2000) agree, stating that hospitals may have valuable information that is readily available, but no one may know that it exists in existing systems. The challenge is knowing which system in the organization to get the data from, how to match it with data from other systems and then how to analyze the whole picture and effectively convey that to the facility's leadership. Morrissey (2000) shares a similar view when he states that computer applications can do much more for physicians and patients than automate routine chores if organizations are aware of what they should be doing to support clinical decisions better. Fortunately, healthcare information companies are also seeing this shift away from purchasing new systems and have begun to alter their approach to the problem. Instead of offering completely new systems, information companies are starting to offer software

updates or packages that aid their customers in decision making capabilities. Getting the most out of existing systems will continue to be the norm as operating budgets continue to shrink.

Data also have indirect implications in the areas of provider productivity, compensation, and improvements to the TRICARE contracts in the future. Data can be used to analyze productivity among providers in the same department and use those data to set standards for productivity in the clinic as a whole. Fogel (2000) also mentions establishing standards based on a unit of service, such as patient days, visits or procedures. Holm & Lipsky (1999) discuss possible approaches to compensating physicians based on linking compensation to individual and overall network performance. They cite common programs that use criteria such as volume (encounters and visits) to determine incentives. In this case, data systems are used to track the number of visits to each provider which is later used to determine the amount of incentive pay the provider is entitled to according to his contract. Lastly, data are important for the future of TRICARE in the form of bid-price adjustments using systems such as CHCS, the Defense Enrollment Eligibility Reporting System (DEERS), and the Defense Medical Information System (DMIS). Data are collected in these systems at various points during the life of a TRICARE contract to determine if the contractor (DOD's civilian partner for healthcare) in a particular region is entitled to more money based on workload that the MTFs in that region were unable to provide and opted to send out to contracted physicians. In this case accurate data are necessary to prevent DOD from spending money inappropriately.

Lastly, military and civilian practices are fairly similar in structure and function. Despite differences in funding approaches and eligibility between the two systems, two studies (Jackson, Strong, Cheng, & Meyer, 1999 and Jackson, O'Malley, & Kroenke, 1999) showed that military

and civilian practices were more similar than different. To that extent it can be argued that the military and civilian systems can each benefit from the other's best business practices.

Purpose

The purpose of this project is to identify areas of data collection and coding compliance that are in need of improvement in MACH's Family Health Clinic and provide it with a reporting tool coupled with an education process to improve those deficient areas. Additionally, the FHC will be used as a model for other clinics in MACH to follow in instituting data quality improvements.

Methods and Procedures

Following DOD's guidance to "establish mechanisms to monitor and ensure data quality within the facilities" (MHS Data Quality Plan, 2000), this program was established to track the data quality of the MACH FHC and develop a type of "scorecard" to present to the C, FHC to help improve FHCs data quality. This project was divided into three phases. Phase I consisted of developing a baseline data period (benchmark) so that future data could be compared against this period to determine if the program is producing improvements. The baseline data are an average of compliance scores and other data from CHCS, ADS, and the Patient Administration Systems and Biostatistics Activity (PASBA) from January to June 2000. In an effort to utilize best practices identified in the literature, this project attempts to address several difficult issues in the operational environment. Similar to Curtright et. al (1999) and Kaplan & Norton (1993), information from these systems was used to develop a one page "snapshot' for each provider assigned to the FHC, reflecting the following information:

1. The provider's ADS compliance for visits and telephone consults. The source for CHCS data is an ad-hoc provider workload report furnished by the MACH Resource Management

Division. PASBA in San Antonio, Texas, provides the ADS data that captures each providers encounters for the desired time frame (in this case, the previous month). These encounters are split into three categories. The first category is for count workload (generates RVUs; RVUs are explained in item 2, below). The second category is for telephone consult encounters (generates zero RVUs). The third category is for non-count workload (generates zero-RVUs). For compliance statistics only the first category (count workload) is compared against CHCS count workload. A second calculation is performed for telephone consults in CHCS compared with telephone consults in ADS.

2. The average Relative Value Unit (RVU) as compared to the FHC as a whole and Region 3. PASBA also provides this report. This is calculated by PASBA by conversion of the codes from the International Classification of Disease (ICD-9), Evaluation and Management (E&M), and Current Procedure Terminology (CPT) data within each Standard Ambulatory Data Record (SADR) found within ADS, into a relative value unit (acuity adjustment). An RVU is defined as the "valuation or rating of physician services on the basis of relative physician resource inputs (work and other practice costs) to provide medical services. Specifically refers to relative physician work values developed by the Harvard University RBS study"(www.tricare.osd.mil/ops/P2C11.PDF, 2000).
3. The provider's percent of total diagnoses and the percentage of those diagnoses that fall into the provider's Top Ten diagnoses are calculated each month. This is compared with the FHC's Top Ten diagnoses for the same month, and the percent of the provider's Top Ten diagnoses that fall into the FHC's Top Ten diagnoses for the same period.
4. The provider's available man hours and the average workload (number of visits per day) for the available man-hours.

Once the data were compiled for each provider, the Chief, Family Health Clinic was briefed on the status of FHC's coding accuracy. A sample of the "snapshot" report for FHC is furnished at Appendix A; a sample of the "snapshot" for an individual provider is furnished at Appendix C. Reference points, such as the Region RVU score, are provided to give the FHC an idea of how they measure up to comparable clinics in the region, and to allow individual providers in FHC to compare themselves with their peers, both in the FHC and across the region. The intent behind this is to provide information to our providers on how their coding effects their RVUs, a reflection of their acuity mix. Phase I ended when all parties involved were aware of the current level of data quality in FHC and the need to improve the data.

Phase II was the transition from the old version of ADS (bubble sheets) to KG-ADS on 1 July 2000. This period in the process caused improvements that were independent of the program. During this phase, July and August 2000, MACH transitioned to KG-ADS, a paperless version of ADS that eliminates the need to scan encounter sheets to receive encounter credit and puts more control for coding back into the provider's hands. Because of this system improvement, data from the Phase II period was markedly better in some areas than in Phase I. However, this time period was not reliable in itself to prove success for the program.

Phase III was the education and surveillance period of the program, incorporating the recommendations for improvement. This period lasted for six months and tracked the data of the aforementioned categories over that time.

The products for Phase III include the "snapshot" and a five-page report for the FHC and each provider. The five page report shows trends for each reported category over time. Additionally, a pharmacy information page was added that relates actual CHCS-derived pharmacy costs for the clinic and individual providers to ADS-generated encounters and acuity

adjusted visits (RVUs). The pharmacy data were derived from CHCS data on provider-entered prescriptions that are married up with true costs. This is a standard report within CHCS at MACH. Appendixes E through H show the progress reports for the FHC. Pharmacy cost information for the FHC and an individual provider are presented at Appendixes I and J, respectively.

In addition to the "snapshot" report, MACH's Utilization Management Coordinator worked with the Chief, FHC to provide an education program on accurate coding to the FHC providers. Additionally, the UM Coordinator and the Chief, FHC worked together to develop a more concise drop down selection list (DDSL) on KG-ADS for the providers to choose from. This DDSL was designed to facilitate more accurate coding of patient visits and reduce the overuse of general diagnosis codes such as "General Health Examination" or "Sprain, Unspecified Site."

This study tracked the progress of 17 family practice providers (physicians, nurse practitioners, and physician assistants) for the duration of the study (January 2000-February 2001). Some of the providers were not assigned to the FHC for the entire baseline period. In those cases, there data were tracked starting with the Phase II period. Pediatric providers were intentionally excluded to allow the study to compare family practice providers exclusively with other MTFs in the region.

The Results

The study revealed positive trends in the areas of ADS compliance for visits and telephone consults and percentage of Top Ten diagnoses. However, the RVU trend did not show a positive result as clearly as the other areas. "Snapshot" reports are presented at Appendixes A through D from the baseline period and the last data period (Jan-Feb 2001) to provide a "before

and after" comparison for both the FHC and an individual provider in the FHC. The individual provider was selected at random to illustrate individual efforts.

ADS compliance for visits for the FHC as a whole improved from 90.9% , an "X" by MEDCOM standards, 99.8% or "green" status, during the course of this study. A large portion of the providers in the FHC improved their individual efforts to 100% compliance by the November-December period. Provider A, for example, raised his/her compliance level from 88.4% ("X") in the baseline period (January-June 2000) to 100.0% ("green") in the January-February period. FHC as a whole actually improved its rating to a "green" in the July-August period (phase II) when it transitioned to the KG-ADS system. This trend continued through all of the subsequent time periods in the study (See Appendix F).

ADS compliance for telephone consults also improved, but not as quickly as compliance for visits (See Appendix G). FHC's overall compliance for ADS timeliness and completeness in January-February 2001 was 99.7% versus 87.9% in the baseline period. This shows that while their efforts produced positive results, more attention is needed in this area to maintain compliance of coding into ADS at a "green" rating.

The percentage of diagnoses that comprised the Top Ten declined for the FHC as a whole, from 64.3% of all diagnoses in the baseline period to 27.7% in January 2001, and for several providers as well. This shows that many providers were less reliant on common codes and began focusing on more accurate coding. This is explained in more detail in the Discussion section.

UCAPERS data, as evidenced by available man hours, and average visits per available day also improved. Data for January-February 2001 reflected an improvement for Provider "A" from an average of 8.90 visits per available day to 14.9 visits per available day. This

improvement is the result of the FHC administrator's efforts to improve UCAPERS reporting for his department. The example of Provider "A's" available hours from the baseline period to the last period reported illustrates the result of focused attention at data quality.

The one area that was not entirely positive was the RVU score for the FHC as a whole and the providers individually. During the course of the study, RVU scores steadily declined for all family health clinics across the region. While FHC's RVU average was higher than the region average for the last three of the five total periods, FHC's overall RVU average dropped with the rest of the region. FHC's average RVU for the baseline period was .935 versus .631 in the last period observed. This is not easily explainable since improved (i.e. more accurate) coding should have resulted in higher RVU weights. Despite the aggregate drop in RVUs across the region, it is encouraging to see that FHC's RVU scores were consistently higher than the region average for all family practice clinics.

Unfortunately, accuracy of data as compared to the incident of care recorded in the outpatient record ("the gold standard") continues to be a challenge. In a related study, MACH's Utilization Management (UM) coordinator and the Director of the Medical Records Administration Branch conducted an audit of patient records to assess the level of accuracy and completeness of information in the outpatient records compared to information in CHCS and ADS. This team randomly selected a sample of MACH providers and audited 30 records of patients seen in the previous month for each provider. Results of one such audit, shown below in Table 1 (provided by C, RMD), showed that none of the records for the six providers that were audited had ICD-9, E&M, and CPT codes that supported the SF600 (Chronological Record of Medical Care) 100% of the time. This poses a potentially large problem for MACH in the way of uncollected charges for incorrect billing to third party insurers. The example illustrated in

Table 1 shows a potential $4,700 loss of revenue for the facility. Additionally, in a worst case scenario, the Health Care Financing Administration (HCFA) could assess triple damages if one of the charges was found to be fraudulent, again because it lacked adequate substantiating documentation or information.

Table 1. Sample Record Audit and related revenue.

				SF600				
	Audited	**KG-ADS**	**SF 600**	**ICD-9**	**E&M**	**CPT**	**Billings**	**NET**
Prov 1	30	30	30	20	28	20/20	$2,500	$1,900
Prov 2	30	30	29	20	20	0/2	$1,600	$1,000
Prov 3	30	30	26	19	16	0/0	$1,500	$800
Prov 4	30	30	25	15	17	22/22	$2,600	$1,850
Prov 5	30	30	26	12	8	0/2	$1,600	$500
Prov 6	30	30	30	11	12	0/2	$1,600	$650
CUM	**180**	**180**	**166**	**97**	**101**	42/48	$11,400	$6,700
		100.00%	**92.20%**	**53.90%**	**56.10%**	**87.50%**		($4,700)

A positive aspect of this issue is the value of the audit tool (Appendix K). The UM coordinator, who helped design this form, felt that it made the audits much easier to perform and captured the needed information in a concise format. It also allows the audits to capture a statistically significant sample of information that can be used in a trend analysis. Previously, the UM Coordinator was auditing 30-40 records for a clinic, instead of a single provider, during a set time frame. This approach prevented a valid analysis of individual providers' efforts and limited the value of the audits to the clinic as a whole.

Discussion

The purpose of this study was to attempt to tie various pieces of information into a concise format that would be of value to providers, their administrators, and the facility's senior leadership. The various portions had to be able to relate to each other to provide a full picture of a provider's data quality. This study also sought to address a difficult issue facing MTFs in a way that would be well received by providers. That issue is the importance of valid data in the

facility's computer systems, specifically those data input by providers that reflect a patient's incident of care.

CHCS and ADS data were selected because these systems are used to capture appointment and workload data. Additionally, ADS coding compliance is an area of emphasis for MEDCOM. The Top Ten Diagnosis data were used to show the level of specificity to which providers code their visits. RVU data were selected because of the utility to both civilian and military providers. According to an abstract by Mele on "Physician Profiling and Behavior Change Report" (2000), RVUs have the following advantages for use as a measuring tool: RVUs are payer-source neutral; they are the same across the country; they allow for comparison; and they have a high acceptance level among physicians. While the last aspect may apply more to providers in civilian practices, RVUs offer a means to convey information to providers about their viability for success in a civilian practice, especially when coupled with the Top Ten Diagnosis portion of the "snapshot."

Essentially, the project was able to accomplish its primary goal of improving coding timeliness and coding specificity. Some of the credit for the improvement in ADS compliance is due to the transition to KG-ADS, which requires the provider to complete the current record before proceeding to a new record. The trending report shows that ADS compliance improved fairly significantly after this transition (Phase II) and continued to improve after this time period (Phase II through Phase III). The effect of KG-ADS will flatten out over time, meaning that providers should become accustomed to closing each record at the end of the visit. Of course, the change to KG-ADS only improved the aspect of timeliness. However, efforts within MACH were needed to improve accuracy.

During the baseline period providers were more apt to capture the incident of care with very general codes such as “General Health Examination” or “Pain in Limb”. These codes do little to provide a clear picture of the incident of care. The Top Ten portion of the “snapshot” revealed the prevalence of the use of these codes. The Drop Down Selection List (DDSL), implemented in mid-October, was a valuable tool in reducing the use of generic codes. The DDSL was designed by the UM coordinator in conjunction with the Chief, FHC. The DDSL segments codes into systems of the body. As a provider codes the incident of care, the DDSL allows him/her to quickly focus on the affected area, thereby entering specific codes that more accurately reflect the incident of care.

Providers were also furnished desk references to aid them in navigating the DDSL in the initial stages of implementation. In essence, this reversed the previous practice: a provider that was accustomed to easily finding generic codes would have to search longer to find a generic code instead of a more accurate code. Appendixes C and D, used as a “before and after” illustration, shows that the “Top Ten” category for our sample provider, “Provider A”, decreased from 70.5% in the baseline period to just 38.2% in the last period (Jan-Feb 2001). Some of the same common codes were used during all the rating periods, such as Issue of Routine Prescriptions or Essential Hypertension, but this is to be expected because these are commonly recurring actions or ailments.

One of the main benefits of this project is the utility of the “snapshot” tool. The layout of the tool, which displays data results from different systems/ reports on one medium, allows the reader to get a clear “picture” of the provider’s data quality and compare that “picture” from one period of time to the next. The trending reports (Appendix F through H) also allow the

administrator or department chief to track changes in data quality over a prolonged period of time (one fiscal year for example).

Because the tool links CHCS/ADS compliance, RVU values, Top Ten Diagnoses, and Available Hours together, the provider (or their supervisor) can see what the fruits of their labor look like from a comprehensive view. For example, if a provider is seeing a high volume of patients (patient visits per available hour), but the RVUs are low, the Top Ten Diagnoses portion may help explain this: overuse of common codes instead of accurate coding may be driving down RVU values. Of course, if common codes are the result of the type of patients presenting to that provider, then the high volume and low RVU values are understandable. If CHCS visits are high, but RVUs are low, then ADS compliance may be the answer. If the provider's ADS compliance is below the 97% MEDCOM standard, then the provider isn't capturing all of their workload for ADS credit or RVU value.

It is important to note that there are no prescribed "scores" for each of the providers to attain in the various categories. This project was not developed for administrators to use against providers. It is designed as a management tool for administrators and clinic chiefs to use to analyze data trends for their providers. With this in mind, benchmark "scores" or "standards" other than those prescribed by MEDCOM, would be at the discretion of the clinic's or hospital's leadership.

As data quality continues to improve, MTF leaders will develop more confidence in making business decisions based off of provided data. They will also be able to use the information in this "snapshot" (i.e. Top Ten Diagnosis and ADS visits and/or telephone consults) to identify potential health epidemics in the served population and develop preventive medicine measures to combat the spread of disease or other health hazards.

Given the overall improvements to data quality and timeliness, this project should be considered successful. It should not, however, be considered a success in the final sense. This point is made because data quality improvement must be a continual process. Additionally, this program needs to expand to include providers from the remaining patient care departments in MACH. Subsequent data reviews have revealed flawed data exist in other clinics in MACH. If the program is successful once fully implemented at MACH, the program could then be considered for implementation at other MTFs in Region 3 or MEDCOM. Given these exceptions, complete success is still some time away.

Limitations

While this project proved beneficial to the organization, specifically the FHC, it is not without limitations. The first limitation is timeliness of receiving data. PASBA was very helpful in providing RVU data for both MACH and Region 3. However, the reports were not always configured the same way (the main difference was the titles of various categories that made up the report). This was a minor point for research, but it did slow the process of computing the providers' averages and merging multiple reports into a single report for a specific time period.

Reports from PASBA were slowed due to PASBA's workload, but again this was a minor issue. If this tool were adopted and used on a regular basis, steps could be taken to smooth the process of receiving reports from PASBA. Additionally, once in-house data were verified with PASBA data over one or two time periods, MTFs could limit data requests to PASBA to quarterly or semiannually. However, PASBA data should be used at periodic intervals to ensure MTF data are accurately reflected at the MEDCOM level.

Beginning 1 October 2000 PASBA was no longer able to capture data for Air Force and Navy facilities. This change did affect the data because fewer facilities were being captured in

the sample, therefore fewer providers were captured in the family practice subset. While this is also a minor point for the project as a whole, it should be noted that the number of facilities used to compute RVU averages for the region changed between Phase II and Phase III.

A second limitation was the use of RVUs as a reportable category. Analysis of RVUs certainly has merit, especially if military providers want to see what their workload looks like from an acuity mix and (potentially) financial point of view. But, since RVUs are a relatively new idea for military MTFs, it may have been premature to use them in the initial design of this tool. Use of RVUs as a measurable category may also be dangerous because it may foster upcoding among providers or motivate providers to gravitate toward the mean RVU shown on their individual "snapshot." This was combated fairly effectively by using the DDSLs and by the Chief, FHC's emphasis on accurate coding. Communicating the intent of the "snapshot" with the providers, which is to promote accurate coding and prevent practice variance, as Wennberg discussed (1998), can also prevent this occurrence. If providers understand the intent and are focused on ensuring that their codes accurately reflect the incident of care, the RVU category should cease to be a point of (albeit minor) contention.

The third limitation, which should be the easiest to overcome in MACH, is exposure. Currently, no department in MACH is actively using the "snapshot" as a tool for data analysis and feedback to providers. However, the Troop Medical Clinic administrator has used it with some success and the administrators for the Department of Surgery and the Department of Medicine (new arrivals to MACH) have both expressed interests in using this tool. The FHC administrator has not actively adopted the "snapshot" because the FHC was used as the model for the study (essentially, the work was done for him). Once training on using the "snapshot" is

completed by these administrators (to include the FHC administrator) the tool could be used to report data on almost all of MACH's healthcare providers.

Increased exposure/ use of the "snapshot" should aid in overcoming potential desires to "game the system" by an individual provider coding just well enough to improve their compliance rates. Administrators will need to communicate to their providers that "gaming the system" defeats the purpose of this tool. Improved (i.e. accurate) coding, which is the desired behavior the tool seeks to illicit, will improve their performance picture on the "snapshot." Attempting to "game the system" or manipulate the data to gravitate toward the group mean only serves to perpetuate the problems that already exist: poor data that leads to hindered management decisions.

The last limitation or detractor of the "snapshot" is the portion of the trending report that captures pharmacy expenses for the individual provider and the clinic as a whole. While the pharmacy information may be interesting, it may be of limited value because providers cannot control the cost of medications, and because the additional calculations such as the cost and number of prescriptions per ADS visit or per RVU may merely serve as "information overload" rather than as a valuable management tool. However, it could be developed at a later time to be of more value. Additionally, it does effectively illustrate the need for accurate ADS data because it uses ADS visits as the denominator for prescriptions per visit and prescription cost per visit.

Conclusion and Recommendations

Essentially, this program is designed to "keep the system honest." To be fully effective, this "snapshot" needs to be coupled with a records review/ audit program that is conducted on a regular basis. MACH has instituted such a program, which was an offshoot of this study. This type of program may be the genesis to a corporate compliance program, which already exists in

many civilian facilities and which has been (informally) pilot tested here at MACH. Voluntary implementation of this type of program followed by dedicated use of the tool would allow MTFs to improve business practices from both a data standpoint (better data, better decisions) and a financial standpoint (more accurate claims, more revenue). These points are even more important when considering the impending changes to TRICARE, specifically TRICARE Senior Prime and TRICARE for life, and changes that will allow MTFs to bill Medicare and allow third party insurers to review MTF records to verify reimbursement. All of these changes will require better data to ensure that MTFs are able to recoup due funds and prevent charges (both monetary and legal) against MTFs.

This program also provides a benchmark from which future data can be compared. This allows a clinic or department chief to track improvements in data for individual providers and the clinic. Implications of this aspect include tying data quality to provider incentives (i.e. bonuses) and using data to redesign appointment templates to achieve optimal capacity. Optimal capacity is intentionally used instead of maximizing capacity. This study was not designed to rationalize increasing visits per provider. Rather it was designed to help determine the optimal capacity that facilitates both quality healthcare and quality record coding. Future studies may show that fewer appointments than the current standard of 30 per provider per day is necessary. If that is found to be the case, that point should be seriously considered.

Future studies could use results from this project or results from prolonged use of this tool to study the correlation between improved data and increased funds captured under third party billing to determine if this tool does provide a financial benefit to a facility. Other studies could address the value of tying provider incentives to productivity measures and use this tool with other data to assess the value of such a program.

An article detailing this tool and its use was recently published in the AMEDD Journal (Moore, Goodman, Coker, Sims, Corey, and Campbell, 2001). The intent behind publishing an article on this topic is the hope that administrators at other facilities will find this tool of value and will implement it at their MTF.

In conclusion, as MTFs become more fiscally challenged by MEDCOM and DOD, they will have to look for innovative (and legal) ways to recover funds from third party insurers. These changes will also force MTF leaders to analyze the way their facility provides care to its served population. These changes will require reliable data as part of the decision making process. To ensure reliable data, those individuals that input data must know how important their data are. As cliche as it sounds, communication is truly the key to success, and data quality is no exception. Data quality is not only the first step in ensuring better business decisions at all levels, it is arguably the most important.

References

Blegen, M., Goode,C., & Reed, L. (1998). Nurse Staffing and Patient Outcomes. Nursing Research, 47 (1), 43-50.

Bertauski, D. & Synoewiez, P. (2000). Ten Steps to a Successful Productivity System. Healthcare Leadership Review, 19 (11), 4.

Campbell, K. (1998). Enrollment Based Capitation: Its use in the Military Health System. Army Medical Department Journal, 46-51.

Curtright, J., Stolp-Smith, S., & Edell, E. (1999). Strategic Performance Management: Development of a Performance Measurement System at the Mayo Clinic. Journal of Healthcare Management, 45 (1), 56-68.

Defense Information Systems Agency (2000). DOD Guidelines on Data Quality Management (Summary) (on-line). Available: www-datadmn.itsi.disa.mil/guidance.html

Dolter, K. (2000). Outcomes Management: an Imperative for the MHS.

Finger, A. (2000, August 21). The biggest coding blunders. Medical Economics 126-142.

Fogel, P. (2000, August) Achieving superior productivity. Healhtcare Financial Management 50-54.

Goodman, R. (2000). The Evolution of Managed Care within the Military Health System. Army Medical Department Journal, 54-59.

Griffith, J. (2000). Championship Management for Healthcare Organizations. Journal of Healthcare Management 45 (1), 17-31.

Hart, S., & Connors, R. (1996). Resourcing Decision Model for Military Hospitals. Military Medicine 161, 552-556.

Holm, C. (2000). Physician-Health System Partnerships: Optimal Strategies for Health Systems and Physician Practices with Limited Financial Resources. Journal of Healthcare Management 45 (5), 286-289.

Holm, C., & Lipsky, M. (1999, July/August). Using compensation to improve primary care. MGM Journal 20-26.

Jackson, J., Strong, J., Cheng, E., & Meyer, G. (1999). Patients, Diagnoses, and Procedures in a Military Internal Medicine Clinic: Comparison with Civilian Practices. Military Medicine 164, 194-197

Jackson, J., O'Malley, P., & Kroenke, K. (1999). A Psychometric Comparison of Military and Civilian Medical Practices. Military Medicine 164, 112-115.

Johnson, J. (2000). Interview with Thomas C. Dolan, PhD., FACHE, CAE, President and CEO of ACHE. Journal of Healthcare Management 45(1), 3-7.

Kaplan, R. & Norton, D. (1993). Putting the Balanced Scorecard to Work. Harvard Business Review. 134-147.

Kaplan, R. & Norton, D. (1996). Using the Balanced Scorecard as a Strategic Management System. Harvard Business Review. 75-88.

Kongstvedt, P. (1997). Essentials of Managed Health Care (2nd Ed.). Gaithersburg, MD: Aspen Publication.

Kovner, A. (1996). Health Care Delivery in the United States (5th Ed). New York, NY: Springer Publishing

LaMar, J., Meyer, G., Jacoby, I., & Potter, A. (1997) Provider Workforce Model for Regional TRICARE Networks. Military Medicine 162 590-596.

Lantz, P., House, J., Lepkowski, J. Williams, D., Mero, R., & Chen, J. (1998). Socioeconomic Factors, Health Behaviors, and Mortality: Results from a nationally representative study of US adults. JAMA 279, (21) 1703-1708.

Ledlow, G., Bradshaw, D., & Shockley, C. (2000). Primary Care Access Improvement: An Empowerment-Interaction Model. Military Medicine 165, 390-395.

McGee, W., & Hudak, R. (1995). Reengineering Medical Treatment Facilities for TRICARE: The Medical Group Practice Model. Military Medicine 160, 235-239.

McGinnis, J., Foege, W. (1993). Actual Causes of Death in the United States. JAMA 270, (18) 2207-2212.

McGraw, E., Barthel, H., & Arrington, M. (2000). A model for Demand Management in a Managed Care Environment. Military Medicine 165, 305-308.

Medical Expense and Performance Reporting System (MEPRS) Information Page (2000). Available: www.meprs.amedd.army.mil/meprs.html

Mele, F. (2000). Boost Physician Productivity with Performance Data. Physician Profiling and Behavior Change Report 3 (8), 123-127. (From Healthcare Leadership Review, 2000, 19(10).

MHS Data Quality Plan (2000). Available: www.ceis.ha.osd.mil/library/docs/docs.htm

Morrissey, J. (2000, August 14). Maximizing unused power: Hospitals save millions by extracting more out of information systems already in place. Modern Healthcare 50-56.

Moore, R., Goodman, R., Coker, D., Sims, B., Corey, D., & Campbell, K. (2001). The Provider Education Program. The U.S. Army Medical Department Journal, Jan-Mar 2001, 3-10.

Philpott, T. (2000). Air Force Medical Chief Leads Overhaul in Health Care Delivery. Newport News Daily Press. (provided via e-mail). 1-4.

Sultz, H. & Young, K. (1999). Health Care USA: Understanding its Organization and Delivery. 2nd Edition. Gaitherburg, MD. Aspen Publishing.

TRICARE Data Quality Home Page (2000). Available: www.tricare.osd.mil/dataquality/links.htm)

TRICARE News Release (1999). Better Data Collection Expected to Improve TRICARE Patient Services. Available: www.tricare.osd.mil/NewsReleases/News99_05.htm

Wennberg, D. (1998). Variation in the Delivery of Health Care: The Stakes are High. Annals of Internal Medicine , 128 (10), 866-868.

Zwanziger, J., Kravitz, R., Hosek, S., Hart, K., Sloss, E., Sullivan, O., Kallich, J., & Goldman, D. (2000). Providing Managed Car Options for a large population: Evaluating the CHAMPUS Reform Initiative. Military Medicine 165, 403-410.

Appendices

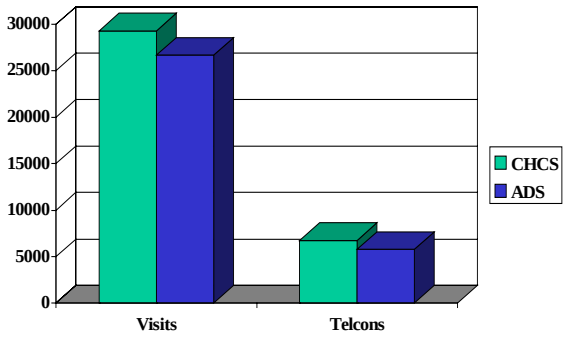
1. FHC Average Scores, January-June 2000
2. FHC Average Scores, January-February 2001
3. Provider “A” Average Scores, January-June 2000
4. Provider “A” Average Scores, January-February 2001
5. FHC Top Ten Diagnoses Progress Report
6. FHC ADS Compliance (Visits) Progress Report
7. FHC ADS Compliance (Telephone Consults) Progress Report
8. FHC RVU Average Progress Report
9. FHC Pharmacy Cost Data, January-June 2000
10. Provider “A” Pharmacy Cost Data, January-June 2000
11. Outpatient Record Review Tool

Appendix 1. FHC Average Scores, January-June 2000

FHC Averages

Jan-Jun '00

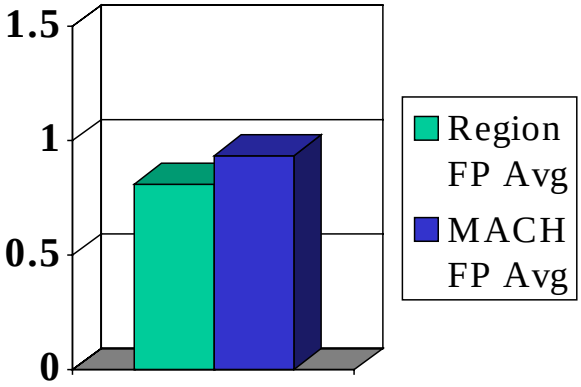
ADS Compliance



FHC Visit Avg - 90.44% X

FHC Telcon Avg - 83.74% X

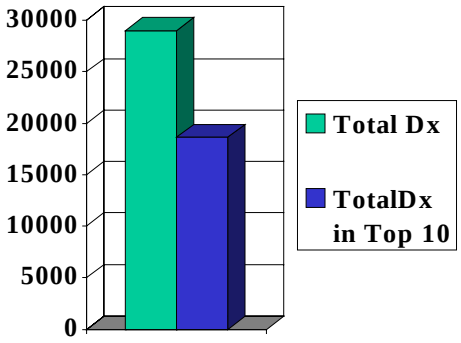
RVU/ Visit

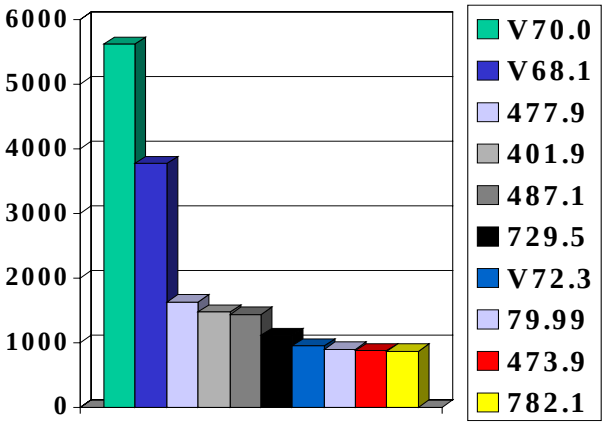


Region 3 Avg RVU -.811

MACH Avg RVU - .935

Top 10 Diagnoses



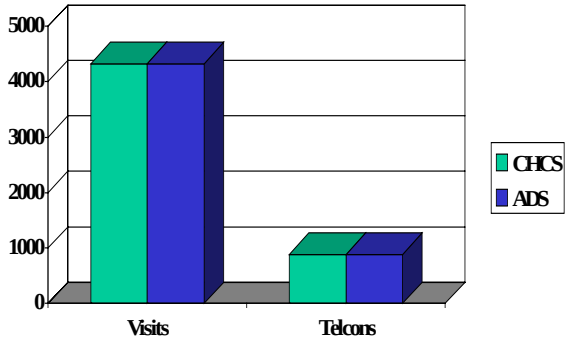


64.28% of all Dx in FHC Top 10

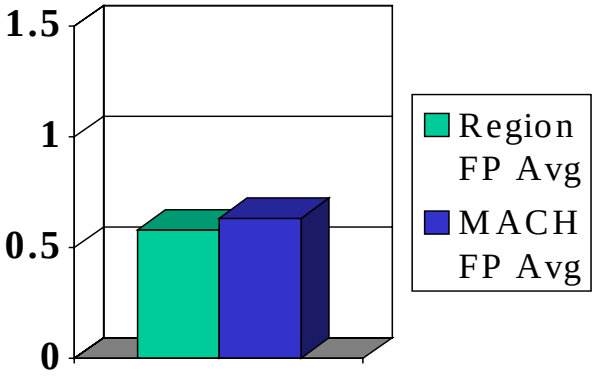
Appendix 2. FHC Average Scores, January-February 2001

FHC Averages Jan-Feb '01

ADS Compliance



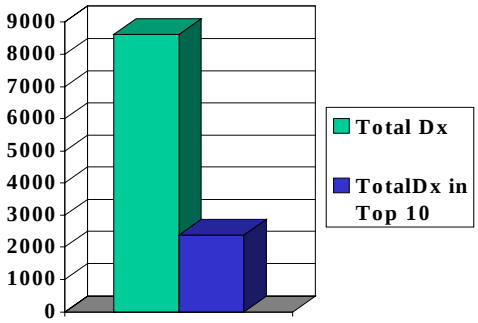
RVU/ Visit

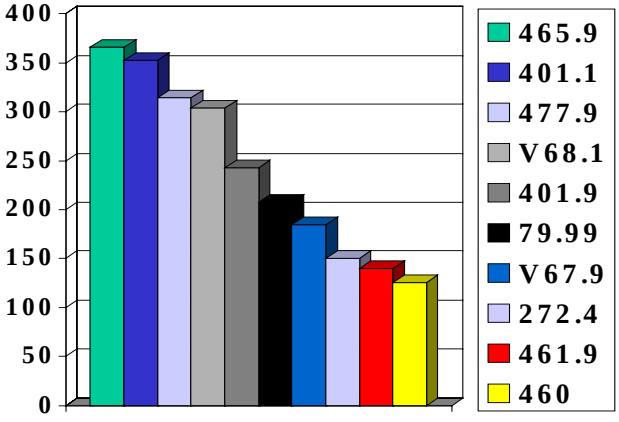


FHC Visit Avg - 99.9%
FHC Telcon Avg - 99.7%

Region 3 Avg RVU -.580
MACH Avg RVU - .631

Top 10 Diagnoses





27.7% of all Dx in FHC Top 10

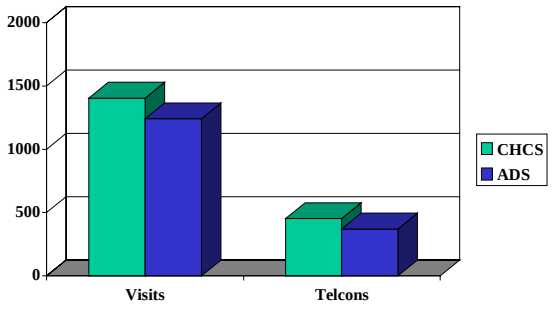
Appendix 3. Provider "A" Average Scores, January-June 2000

Dr. A

Jan-Jun '00

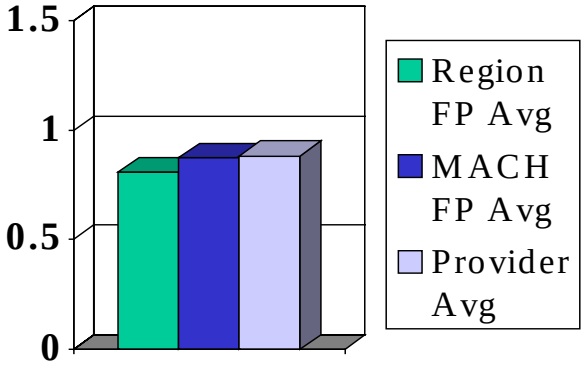
Available Days = 157; Visits/ Day = 8.90

ADS Compliance



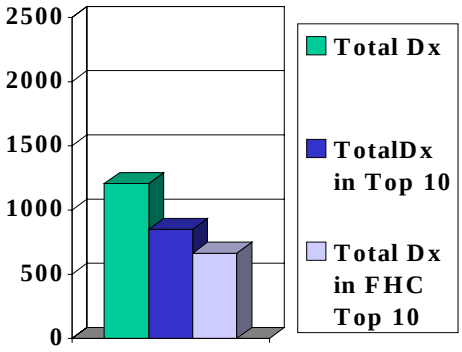
Visit % - 88.45% X
FHC Visit Avg - 90.44%
Telcon % - 81.8% X
FHC Telcon Avg - 83.74%

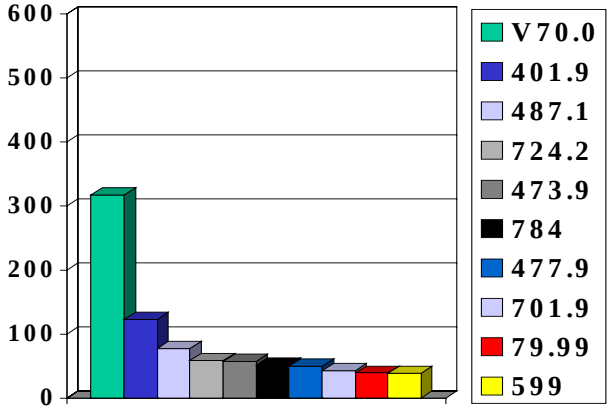
RVU/ Visit



Avg RVU - .883
Deviation from Region mean - .251
* FP only

Top 10 Diagnoses





70.47% of Dx in Top 10
54.75% in FHC Top 10
77.70% of Top 10 in FHC Top 10

* See legend for diagnosis code

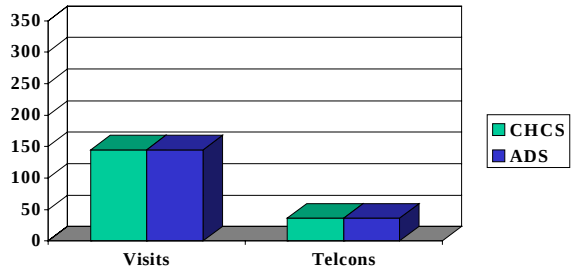
Appendix 4. Provider "A" Average Scores, January-February 2001

Dr. A

Jan-Feb '01

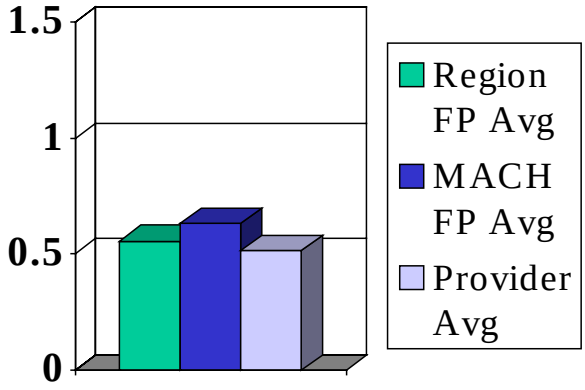
Available Days = 19.4; Visits/ Day =14.9

ADS Compliance



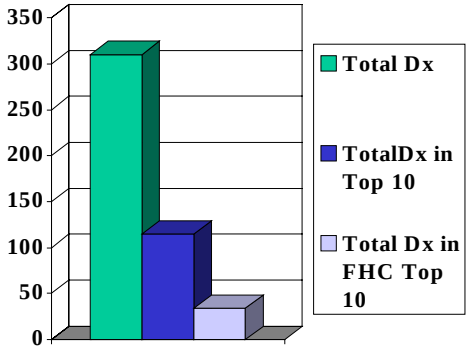
Visit % - 100.0%
FHC Visit Avg - 99.9%
Telcon % - 100.0%
FHC Telcon Avg - 99.7%

RVU/ Visit

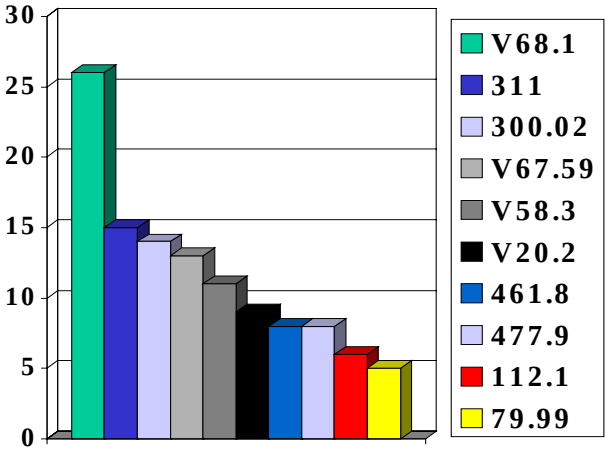


Avg RVU - .633

Top 10 Diagnoses



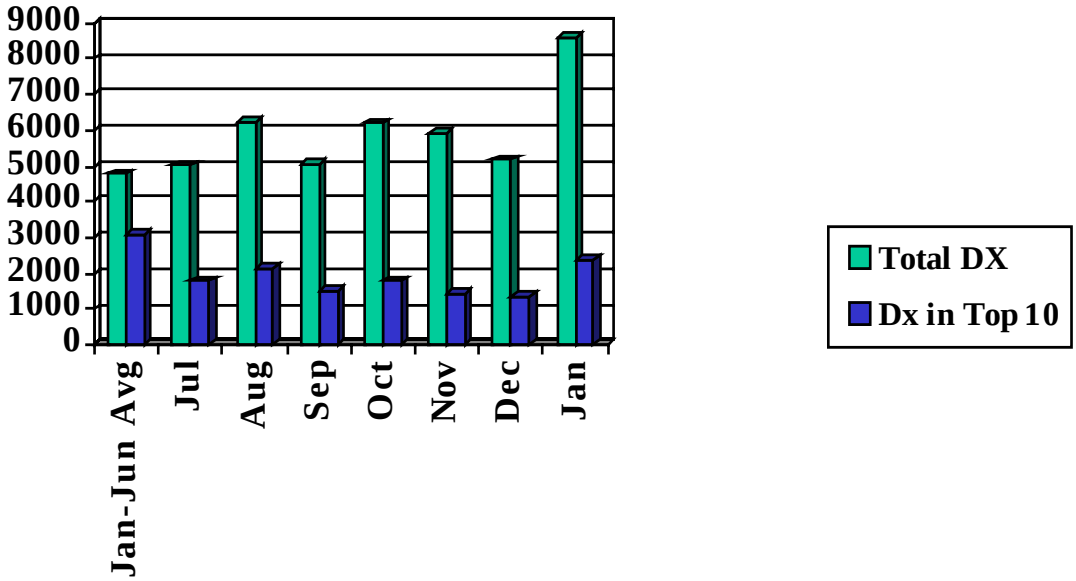
37.1% of Dx in Top 10
10.9% in FHC Top 10
29.6% of Top 10 in FHC Top 10



* See legend for diagnosis code

Appendix 5. FHC Top Ten Diagnoses Progress Report

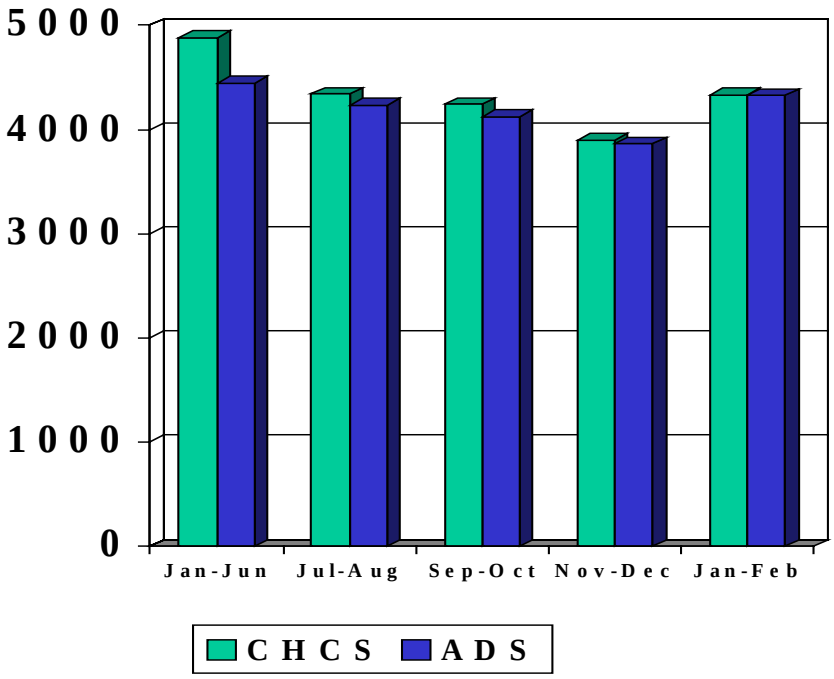
FHC Top 10 Dx % Average



- Jan-Jun (Baseline) Avg 64.3%
- July 35.6%
- August 34.4%
- September 29.7%
- October 28.8%
- November 24.3%
- December 26.5%
- January 27.7%

Appendix 6. FHC ADS Compliance (Visits) Progress Report

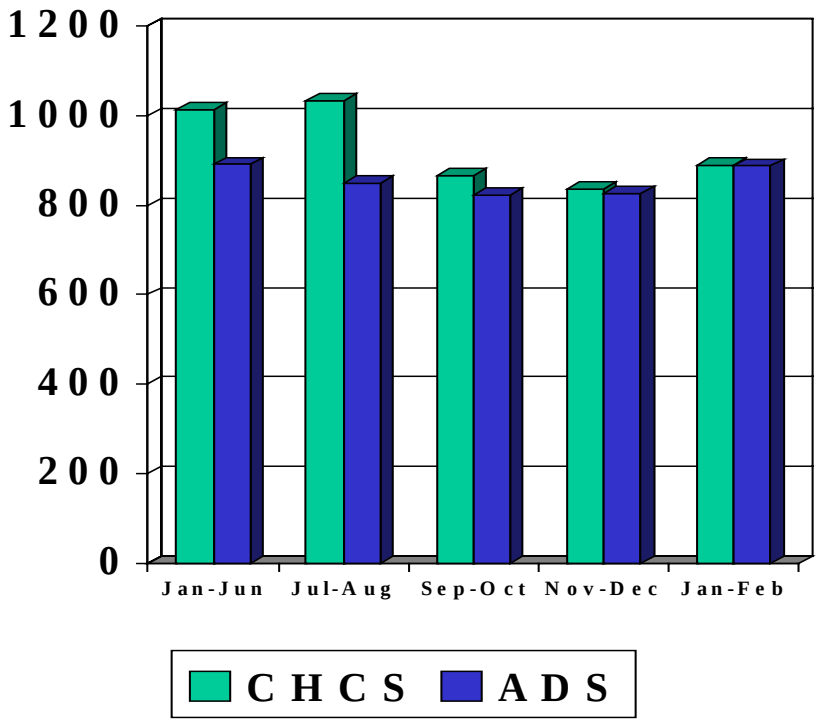
FHC ADS Compliance - Visits



- Jan-Jun Avg 90.9% X
- Jul-Aug Avg 97.6%
- Sep-Oct Avg 97.2%
- Nov-Dec Avg 99.1%
- Jan-Feb Avg 99.9%

Appendix 7. FHC ADS Compliance (Telephone Consults) Progress Report

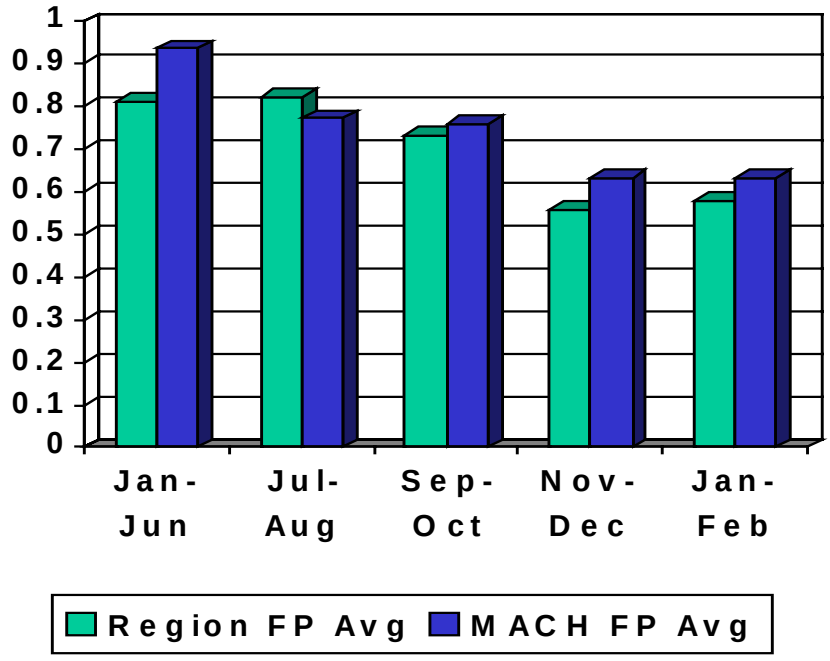
FHC ADS Compliance - TelCons



- Jan-Jun Avg 87.9% X
- Jul-Aug Avg 82.4% X
- Sep-Oct Avg 94.5%
- Nov- Dec Avg 98.7%
- Jan-Feb Avg 99.7%

Appendix 8. FHC RVU Average Progress Report

FHC RVU Average



	MACH	Region
• Jan-Jun	.935	.811
• Jul-Aug	.772	.823
• Sep-Oct *	.758	.734
• Nov-Dec	.633	.557
• Jan-Feb	.631	.580

* - Army MTF data only after 1 Oct 2000

Appendix 9. FHC Pharmacy Cost Data, January-June 2000

FHC Pharmacy Costs January-June 2000

- **Total Prescriptions 41,148***
  - New Prescriptions 31,343
  - Refill Prescriptions 9,805
- **Total Cost $819,304.66**
- Average Cost $19.91
- Average Rx per ADS Visit
  - 41,148 Rx/ 21,485 Visits = 1.915
- Average Rx Cost per ADS Visit
  - $819,304.66/ 21,485 = $38.13
- Rx per Acuity Adjusted Visit (RVU)
  - $819,304.66/ 20,068.7 = $40.82

- *- Rxs of Providers included only

Appendix 10. Provider "A" Pharmacy Cost Data, January-June 2000

Dr. A
Pharmacy Costs

- FHC Only
- **Total Prescriptions 2,657**
  - New Prescriptions 2,245
  - Refill Prescriptions 412
- **Total Cost $79,847.62**
- Average Cost $30.05
- Average Rx per ADS Visit
  - 2,657 Rx/ 1,238 Visits = 2.14
- Average Rx Cost per ADS Visit
  - $79,847.62/1,238 = $64.49
- Rx per Acuity Adjusted Visit (RVU)
  - $79,847.62/ 1,088 = $73.39

Appendix 11. Outpatient Record Review Tool

	Patient Last Name	SSN Last Four	Visit entered in CHCS	SF 600 in record	SF600 complete (admin data) *	Entered in KG-ADS	SF600 Spts KG-ADS **	Documentation supports Diagnosis codes			AUDIT SCORE Max = 8	Auditor Initials
								ICD-9	E & M	CPT		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
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27												
28												
29												
30												
	CUMULATIVE SCORE											